

## **Chapter 8 CONCEPT DESIGN STUDIES**

### **A. General**

This chapter outlines the requirements for a Concept Design Study. A Concept Design Study submittal (approximately 10% of the total design effort) shall be provided only when required by the SOW. This submittal will be presented as a single narrative/graphic report and shall consist of analyses of alternative designs, final concept drawings and cost estimates.

### **B. Objective**

The concept submittal shall provide sufficient information to demonstrate that the User's proposed requirements can be met within the programmed budget and Statement of Work. The concept submittal shall indicate the designer's understanding of the User's functional requirements through the development of up to three alternative schemes for review. Applicable criteria shall be listed and major design constraints and opportunities addressed. Any information needed to support the designer's approaches shall be provided for review.

### **C. Submittal Requirements**

The concept submittal will be a single, 8-1/2"x11" bound volume, including 22"x34" drawing sheets which are folded and placed in envelopes and bound into the volume. The number of copies will be as indicated in the project SOW. The submittal will include the following elements.

#### **1. Executive Summary.**

A brief description of the project program, site, phasing requirements, design alternatives, and construction cost estimates. If any construction cost estimate exceeds the ECCP, the A/E shall make recommendations for reducing the project cost and/or scope to within the ECCP while still providing a complete and usable facility.

#### **2. Design Analysis Narrative.**

Discuss analysis and conclusions regarding the issues identified below, as applicable, including the alternatives considered, proposed systems and materials, and justification for selection.

##### **a. Architecture.**

- 1) Project program, site and building design requirements.
- 2) Architectural design goals.
- 3) Controlling functional considerations, and adjacency requirements.
- 4) Primary architectural systems, including exterior wall and roof systems and interior finishes.
- 5) Barrier free access requirements.

- 6) Future development considerations.

**b. Landscape Architecture.**

- 1) Existing conditions, design goals, and proposed solutions.

**c. Civil Engineering.**

- 1) Existing site conditions.
- 2) Demolition and hazardous material abatement (Asbestos, lead, PCBs, etc.)
- 3) Grading and drainage requirements and proposed solutions.
- 4) Existing water and sewer utility conditions and proposed modifications.
- 5) Paving and traffic flow.
- 6) Future expansion considerations.
- 7) Any environmental impacts.
- 8) Permitting requirements.

**d. Structural Engineering.**

- 1) Alternative and recommended foundation systems (piling, spread footings, etc.)
- 2) Alternative and recommended structural systems.

**e. Mechanical Engineering.**

- 1) Heating and Ventilation: General and special building, shop, and equipment requirements, heating source (oil, natural gas, electric, etc.)
- 2) Plumbing and Fire Protection: Storm water drainage, building and shop supply and waste systems, special shop waste requirements, compressed air systems, and fire protection systems.

**f. Electrical Engineering.**

- 1) Existing electrical service conditions and proposed modifications.
- 2) Interior lighting requirements.
- 3) Electrical power distribution, panelboards, conduit and other service equipment.
- 4) Fire alarm system.
- 5) Communications/intercom/PA system

**3. Computations.**

The gross square footage of the plan(s) must be provided, including a space budget in tabular form comparing approved net square footage with designed net square footage.

The net floor area for each specific programmed area and/or room shall be calculated and shown on drawings to indicate compliance. The floor areas of additional covered or uncovered

spaces related to the structure must also be computed and described. If the individual spaces vary more than plus or minus 10% NSF and/or the GSF is exceeded notes shall be included to justify why the space(s) are larger/smaller than approved.

#### 4. Drawings.

For each proposed design solution provide the following:

##### a. Building plans, Exterior Elevations and Sections.

Drawings shall be scaled at  $1/16" = 1'-0"$ . Rooms shall be dimensioned and titled with programmed identification and the programmed NSF and the designed NSF shown in each room. The floor plan shall indicate major zoning requirements and building organization. A building section indicating the structure's vertical relationship to the site as well as internal floor to floor heights are to be shown. Include a typical wall/roof section at  $3/4" = 1'-0"$ .

##### b. Perspectives.

A soft pencil or computer generated perspective illustrating the proposed facades

##### c. Site Plan.

Site plans shall be scaled at  $1" = 20'$ .

##### d. Phasing and Equipment Plans.

Floor plans which indicate project phasing and/or shop equipment layout if required.

##### e. Fire and Life Safety Code Analysis.

Describe building occupancy and identify occupancy separations as per UBC Table 5B and NFPA 101. List the criteria to be used, analysis occupancy classification, occupancy load factors, fire area limits, type of construction, fire protection requirements for building components, occupancy separation exiting and egress and all additional fire protection life safety requirements.

#### 5. Cost Estimates.

Provide separate construction cost estimates in accordance with Appendix E for each Project Phase of each new design solution.

#### 6. Appendices.

- Site Location maps.
- Site visit and meeting notes.
- Site and facilities photographs.

- Recommended additional studies and investigations

#### **D. Final Concept Plan**

Based on the User's analysis of the conceptual plans developed, the A/E shall develop a final conceptual plan which will incorporate FD&CC's review comments into a schematic architectural and civil design which represents the desired functional layout of the facility. Any necessary revisions to the Narrative/Basis of Design and Computation will be made and submitted with the final conceptual architectural plan. The cost estimate shall use the summary format as required by the SOW.